



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,554	09/07/2005	Richard John Evans	038819.55861US	9119
23911	7590	09/25/2007	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			FUJITA, KATRINA R	
		ART UNIT	PAPER NUMBER	
		2624		
		MAIL DATE	DELIVERY MODE	
		09/25/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/524,554	EVANS, RICHARD JOHN
	Examiner	Art Unit
	Katrina Fujita	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 14 February 2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-15 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 14 February 2005 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 02/14/2005.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is responsive to Applicant's remarks received on February 14, 2005. Claims 1-15 remain pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(3) because the letters on the drawings are very small and difficult to read.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 1-5, 10 and 20.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The abstract of the disclosure is objected to because of the following:

In line 7, "[Fig. 1]" should be removed.

Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities:

The first line of the specification does not include a sentence acknowledging applicant's claim for foreign priority. The examiner suggests amending the specification to include that information.

Appropriate correction is required.

Claim Suggestions

7. In claim 8, line 5, "them s below" should be changed to -- them s is below --.

Claim Objections

8. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

9. Claims 7 and 12 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 7 lacks antecedent basis for "the corresponding histogram cell" in line 3.

The following will be assumed for examination purposes: -- the a corresponding histogram cell --.

Claim 12 lacks antecedent basis for "the classification" in line 3. The following will be assumed for examination purposes: -- the a classification --.

Claim Rejections - 35 USC § 102

Art Unit: 2624

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 2, 8-12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe (US 2003/0048926).

Regarding **claims 1, 2 and 15**, Watanabe discloses an apparatus and method for processing video images to detect an event of interest (“surveillance system and surveillance method and surveillance program for automatically detecting a person matching prescribed conditions from surveillance images” at paragraph 0002, line 1), comprising:

a source of video images, producing a video signal representing the video images to be processed (figure 15, numeral 10);

a feature extraction device receiving the video signal and producing data representing at least one point feature detected within the image (figure 16, numeral 12);

a feature tracking device receiving the data representing point features and producing data representing tracks, being representative of the position and speed of each respective point feature, within the image (figure 16, numeral 13);

a learning device receiving the data representing the tracks and producing a signal representing a range of behavior considered normal by the learning device, in response to operation of a learning process on the data representing the tracks (figure 16, numeral 64);

a classification device receiving both the signal representing the normal range of behavior of the tracks and the data representing the tracks, being adapted to compare the signal and the data and to issue a normal/abnormal signal in accordance with the outcome of such comparison (figure 15, numeral 81); and

an alarm generation device receiving the normal/abnormal signal and generating at least one active alarm signal in response to the normal/abnormal signal indicating abnormal behavior of at least one track (“information for a theft suspect” at paragraph 0149, line 7) wherein the alarm signal causes at least one of the following effects:

draw the attention of the operator (“sending information about a specific person to be detected by one particular client section 60” at paragraph 0163, line 1);

place an index mark at the appropriate place in recorded video data; and trigger selective recording of video data.

Regarding **claim 8**, Watanabe discloses a method wherein the comparison process acts to classify as normal behavior a track adjacent or near a cell (figure 9) which is above the occupancy threshold, despite the track appearing in a cell below the

Art Unit: 2624

occupancy threshold, where one cell is considered to be near another if the distance between them is below a predetermined distance threshold ("whether or not the characteristics of the human region thus detected match the characteristics of the specific person" at paragraph 0111, line 5).

Regarding **claim 9**, Watanabe discloses a method wherein abnormal tracks are filtered, whereby an active alarm signal is generated in response to an abnormal track which resembles a number of other abnormal tracks ("detects the suspect from the surveillance images" at paragraph 0149, line 10), in terms of at least one of position, velocity and time.

Regarding **claim 10**, Watanabe discloses a method wherein abnormal tracks are filtered, whereby an active alarm signal is generated in response only to an abnormal track which has been classified as abnormal on a predetermined number of occasions (i.e. once).

Regarding **claim 11**, Watanabe discloses a method wherein abnormal tracks are filtered, whereby an active alarm signal is generated in response only to a track being classified as abnormal for the first time ("inputs information about a specific person (for example, a person who has conducted suspicious actions)" at paragraph 0160, line 21).

Regarding **claim 12**, Watanabe discloses a method wherein abnormal tracks are filtered, whereby an active alarm signal is generated only in response to a filtered version of the classification rising above a predetermined threshold value ("If it is judged that the face image in the specific person table 24 does match" at paragraph 0112, line 1).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 3, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Watanabe and Schwerdt et al. ("Visual Recognition of Emotional States", ICMI).

Regarding claims 3 and 4, Watanabe discloses a method wherein the learning process accumulates data representing the behavior of the track(s) over a period of time using four dimensions representing x-position, y-position, x-velocity and y-velocity, of the track(s) within the video image (figure 9) wherein the learn behavior stage segregates the tracks according to a velocity threshold; wherein tracks moving at a velocity below the velocity threshold are considered stationary (figure 9, "Stay") while tracks moving at a velocity in excess of the velocity threshold are considered mobile (figure 9, "Move"); wherein data concerning the mobile tracks is stored, data concerning the stationary tracks being stored in a two-dimension histogram (figure 6), said two dimensions representing x-position and y-position within the video image.

Watanabe does not disclose that the data concerning the mobile tracks is stored in a four-dimensional histogram.

Schwerdt et al. discloses a method in the same field of endeavor of object tracking and recognition that accumulates data representing the behavior of the mobile track(s) over a period of time in a four-dimensional histogram ("four dimensional histogram" at section 3.2, paragraph 4, line 1).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the 4-D histogram of Schwerdt et al. to keep track of the data of Watanabe "because the memory space requirements are lower" (Schwerdt et al. at section 3.2, paragraph 6, line 8).

Regarding **claim 7**, Schwerdt et al. discloses a method wherein the comparison process classifies a track according to a comparison of the frequency of occupation of the corresponding histogram cell with an occupancy threshold (Table 2).

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Watanabe and Kamin (US 4,198,653).

Watanabe discloses the elements of claim 1 as described in the 102 rejection above.

Watanabe does not disclose that subsequent active alarm signals are inhibited for a predetermined time interval after a first active alarm signal has been produced.

Kamin discloses a method in the same field of endeavor of video tracking wherein subsequent active alarm signals are inhibited for a predetermined time interval

after a first active alarm signal has been produced ("first alarm pulse A' (Fig. 3d), which originates from field 2 and which would normally result in a spurious alarm, is suppressed at the right time" at col. 4, line 24).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the delay of Kamin in the alarm generation device of Watanabe to provide "high sensitivity with respect to events which are relevant to a genuine alarm" (Kamin at col. 1, line 59).

15. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Watanabe and Wyschogrod et al. (US 5,374,932).

Watanabe discloses the elements of claim 1 as described in the 102 rejection above.

Watanabe does not disclose that subsequent active alarm signals are inhibited if caused by an abnormal track within a predetermined distance of another track which has previously generated an alarm.

Wyschogrod et al. discloses a method in the same field of endeavor of video surveillance wherein subsequent active alarm signals are inhibited if caused by an abnormal track within a predetermined distance of another track which has previously generated an alarm ("alerts to suppressed if the target on approach is projected onto more than one runway" at col. 106, line 23).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the alert suppression in the alarm generation device of Watanabe to prevent alert generation for false targets.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Watanabe and Schwerdt et al. as applied to claim 3 above, and further in view of Zuniga (US 5,546,474).

The Watanabe and Schwerdt et al. combination discloses the elements of claim 3 as described in the 103 rejection above.

The Watanabe and Schwerdt et al. combination does not disclose that a cell size of the histogram varies in accordance with a measured speed in the image of each respective track.

Zuniga discloses a method in the same field of endeavor of region detection wherein a cell size ("size of a cell can vary" at col. 10, line 14) of the histogram varies in accordance with a measured speed in the image of each respective track ("moment of inertia" at col. 10, line 9).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the cell varying of Zuniga in the histogram of the Watanabe and Schwerdt et al. combination to allow the user to evaluate a "performance/quality tradeoff" (Zuniga at col. 10, line 15).

Art Unit: 2624

17. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Watanabe and Schwerdt et al. as applied to claim 3 above, and further in view of Jepson et al. (US 7,058,205).

The Watanabe and Schwerdt et al. combination discloses the elements of claim 3 as described in the 103 rejection above.

The Watanabe and Schwerdt et al. combination does not disclose that the histogram is periodically de-weighted in order to bias the result of the learning process towards more recent events.

Jepson et al. discloses a method in the same field of endeavor of motion tracking wherein the histogram is periodically de-weighted in order to bias the result of the learning process towards more recent events ("up-weight the more recent frames" at col. 3, line 19).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the weight varying of Jepson et al. to the histogram of the Watanabe and Schwerdt et al. combination such that a "optimal motion estimation is achieved" (Jepson et al. at col. 3, line 12).

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina Fujita whose telephone number is (571) 270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Katrina Fujita
Art Unit 2624


BRIAN WERNER
SUPERVISORY PATENT EXAMINER